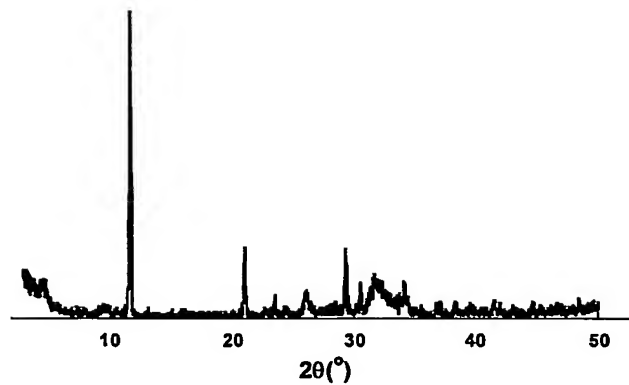
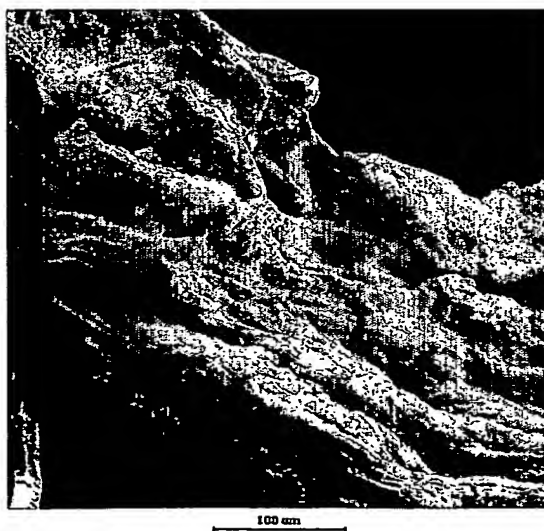


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5      Figure 1: XRD pattern of composite following co-precipitation (Cu-K $\alpha$  radiation).

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15      Figure 2: SEM micrograph of triple co-precipitate.

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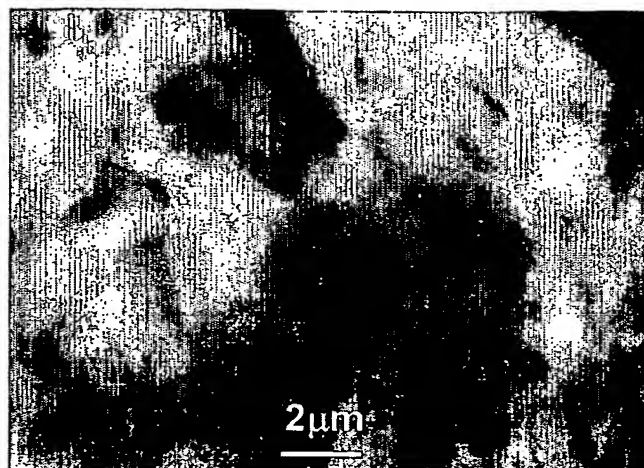


Figure 3: TEM micrograph of triple co-precipitate

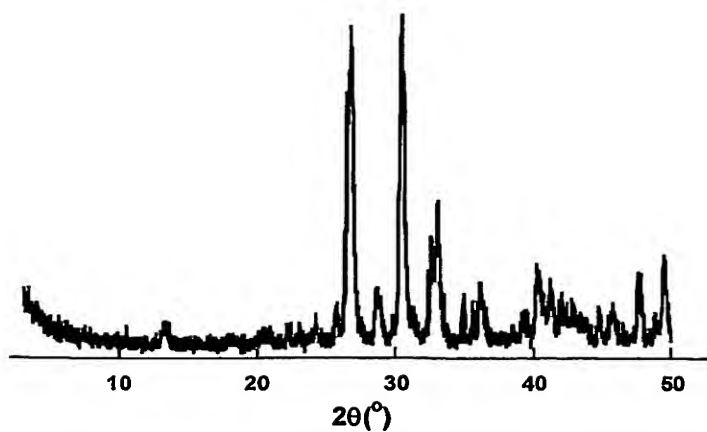


Figure 4: XRD pattern of composite following dehydrothermal treatment at 105°C and 50mTorr for 48 hours, indicating that the brushite phase has converted to its dehydrated form monetite.

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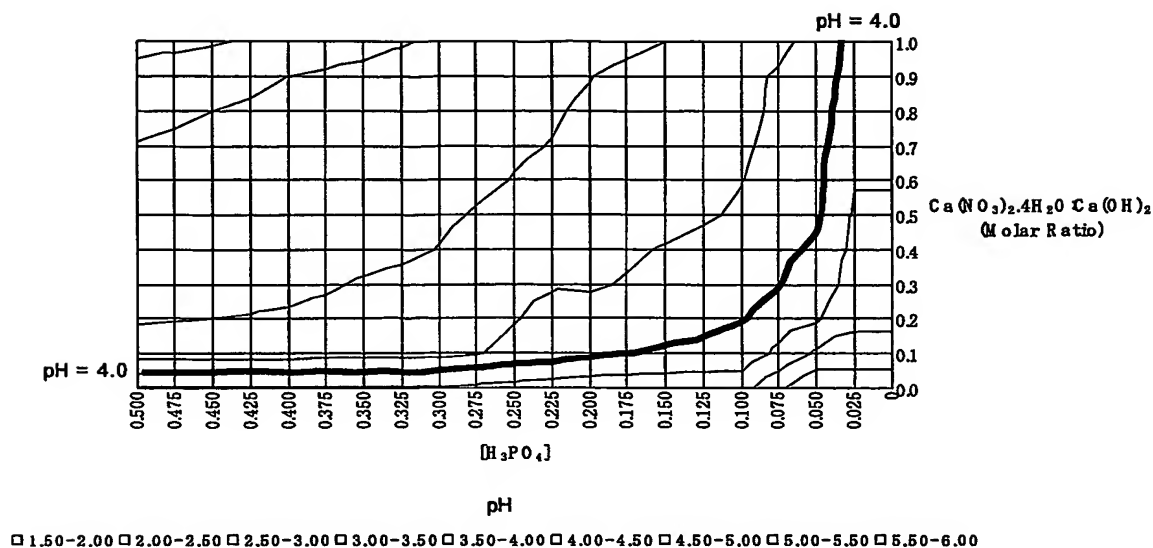


Figure 5: set of combinations of ionic concentration and calcium nitrate: calcium hydroxide ratio for maintaining pH = 4.0.

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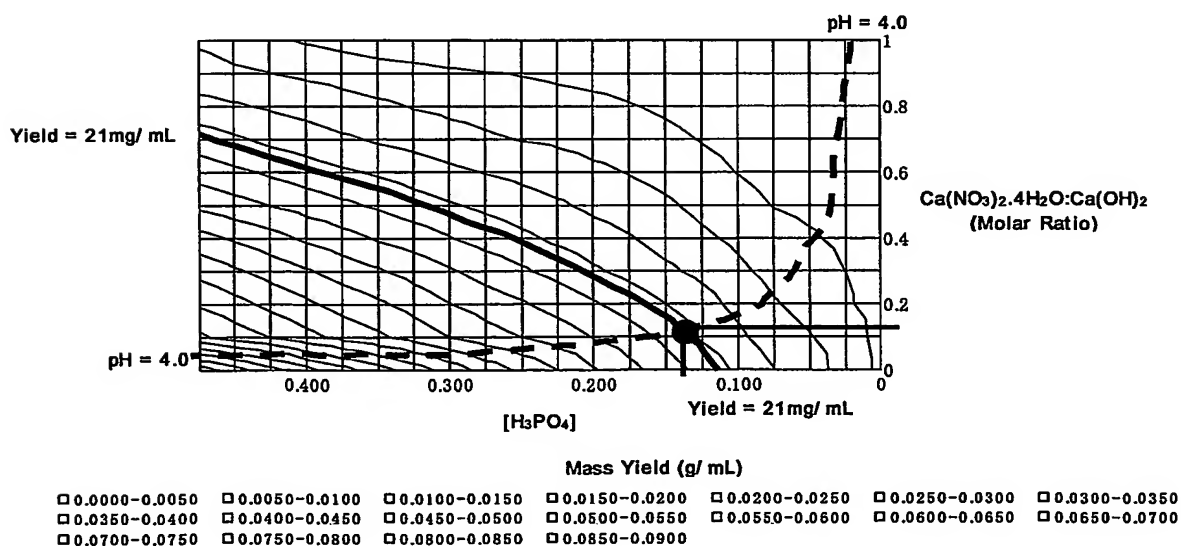
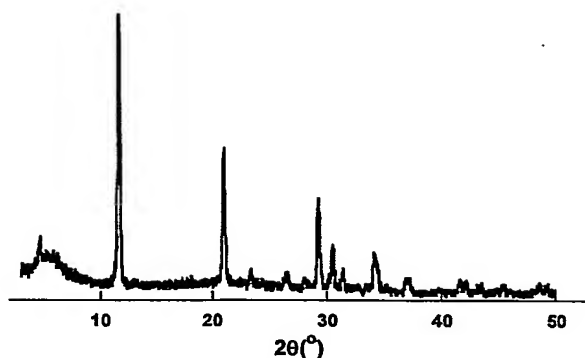


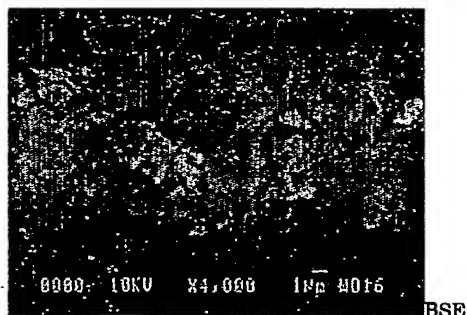
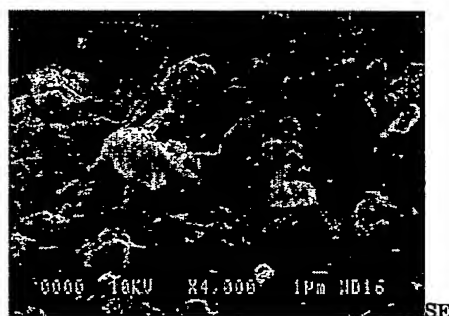
Figure 6: Identification of conditions for pH 4.0 synthesis of a triple coprecipitate slurry containing a 1:1 mass ratio of calcium phosphate to collagen plus GAG.

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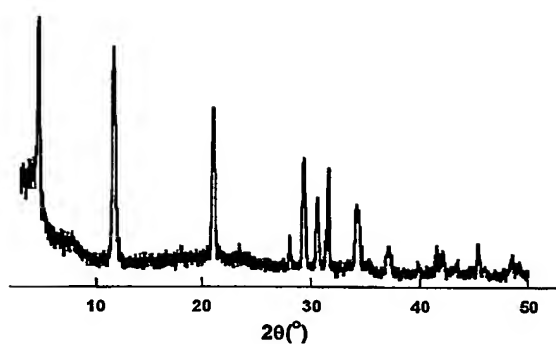


5 Figure 7: x-ray diffraction pattern of collagen/GAG/brushite triple coprecipitate following removal of unbound water (Cu-K $\alpha$  radiation).

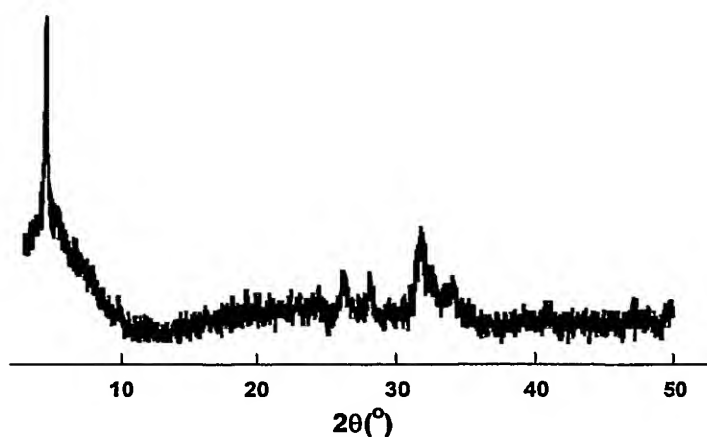


10 Figure 8: Secondary (SE) and backscattered electron (BSE) images of surface of triple coprecipitate with CaP: collagen + GAG = 1:1.

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5 Figure 9: x-ray diffraction pattern of collagen/GAG/brushite triple coprecipitate following EDAC crosslinking (Cu- $K_{\alpha}$  radiation).



10 Figure 10: x-ray diffraction pattern of EDAC-crosslinked collagen/GAG/CaP triple coprecipitate following conversion at 37°C to octacalcium phosphate (OCP) over 72 hours at pH 6.67, to form a  
15 collagen/GAG/OCP biocomposite (Cu- $K_{\alpha}$  radiation).

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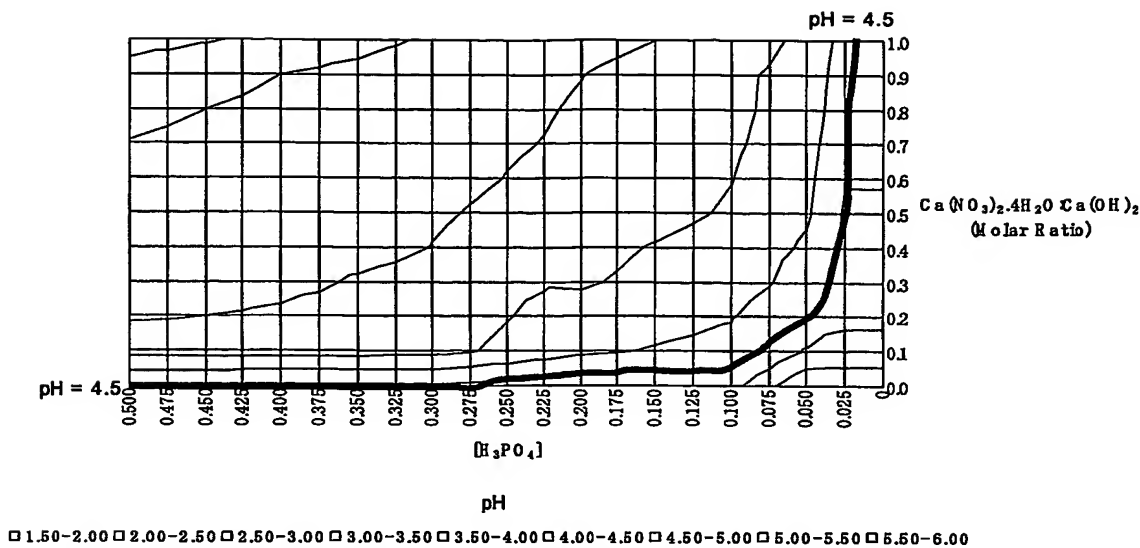


Figure 11: set of combinations of ionic concentration and calcium nitrate: calcium hydroxide ratio for maintaining pH = 4.5.

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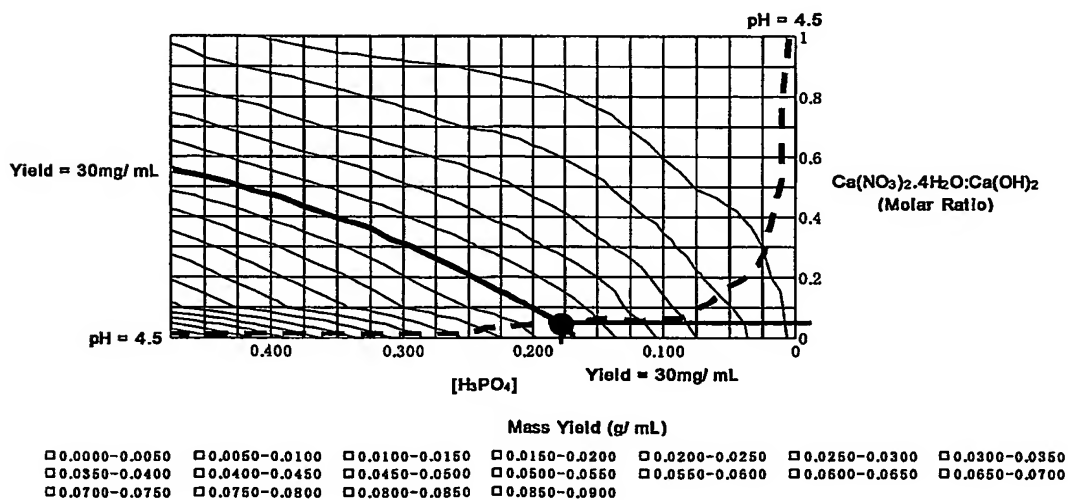
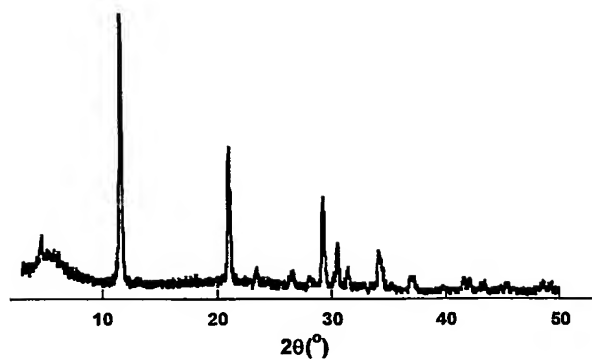


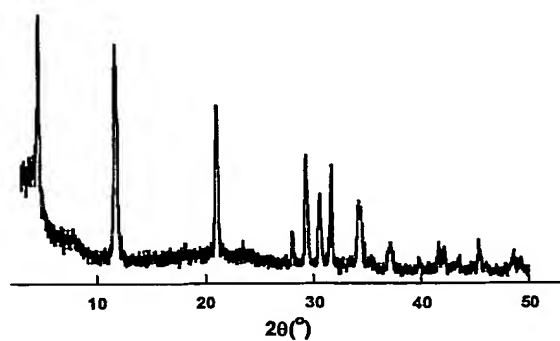
Figure 12: Identification of conditions for pH 4.5 synthesis of a triple coprecipitate slurry containing a 3:1 mass ratio of calcium phosphate to collagen plus GAG.

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5 Figure 13: x-ray diffraction pattern of collagen/GAG/brushite triple coprecipitate following removal of unbound water (Cu- $K_{\alpha}$  radiation).

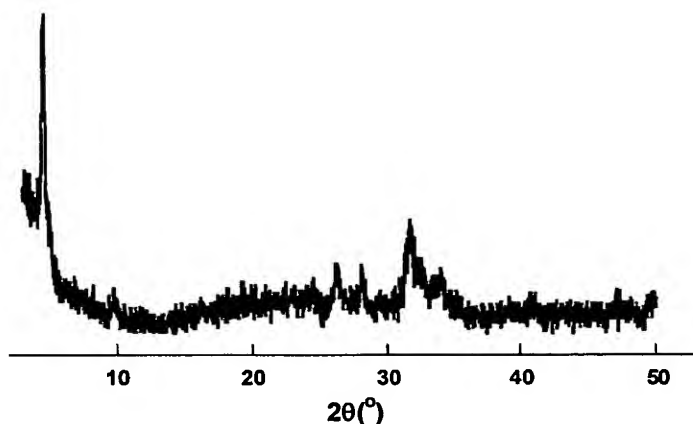


10 Figure 14: x-ray diffraction pattern of collagen/GAG/brushite triple coprecipitate following EDAC crosslinking (Cu- $K_{\alpha}$  radiation).

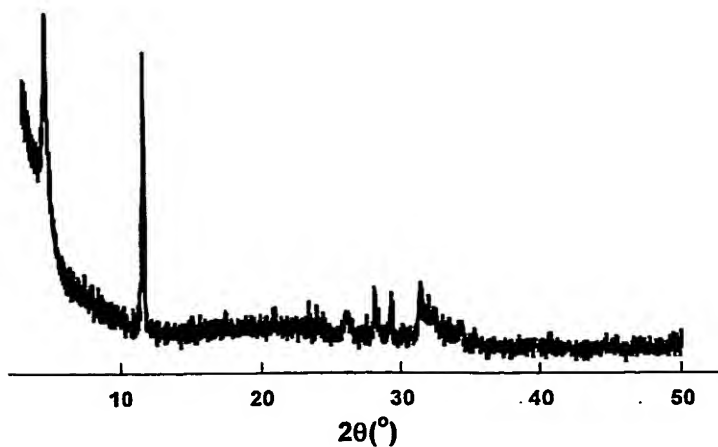
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5 Figure 15: x-ray diffraction pattern of EDAC-crosslinked collagen/GAG/CaP triple coprecipitate following conversion at  $37^{\circ}\text{C}$  to apatite over 72 hours at pH 8.50, to form a collagen/GAG/apatite biocomposite (Cu- $K_{\alpha}$  radiation).



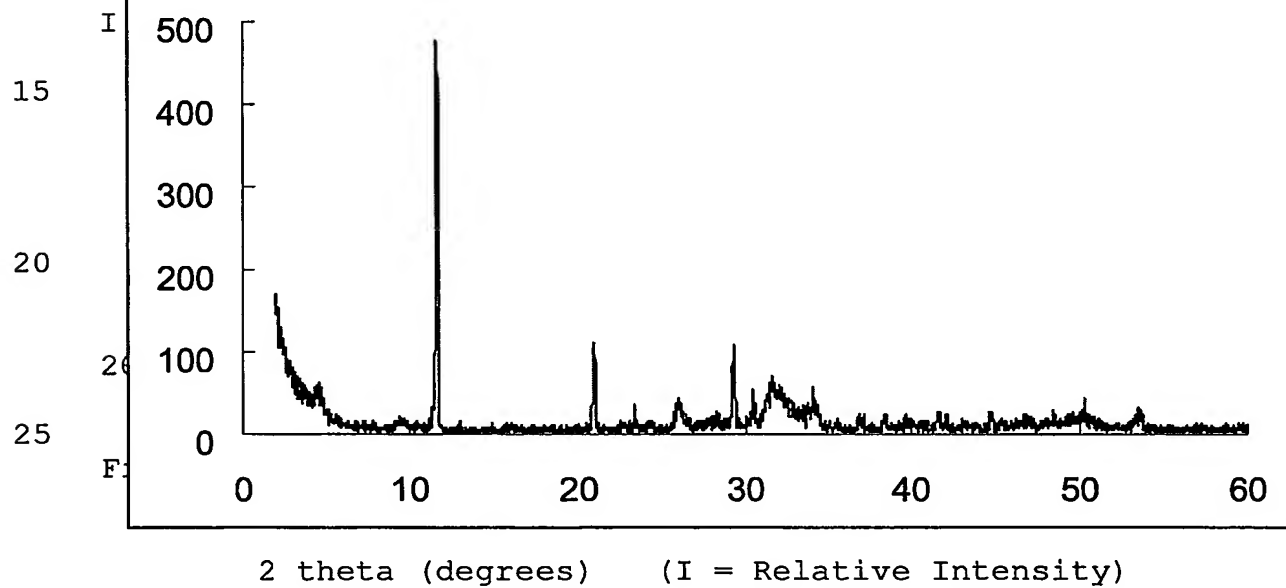
10 Figure 16: X-ray diffraction pattern of EDAC-crosslinked collagen/GAG/Ap triple coprecipitates after secondary crosslinking via gamma irradiation.



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**Figure 17**

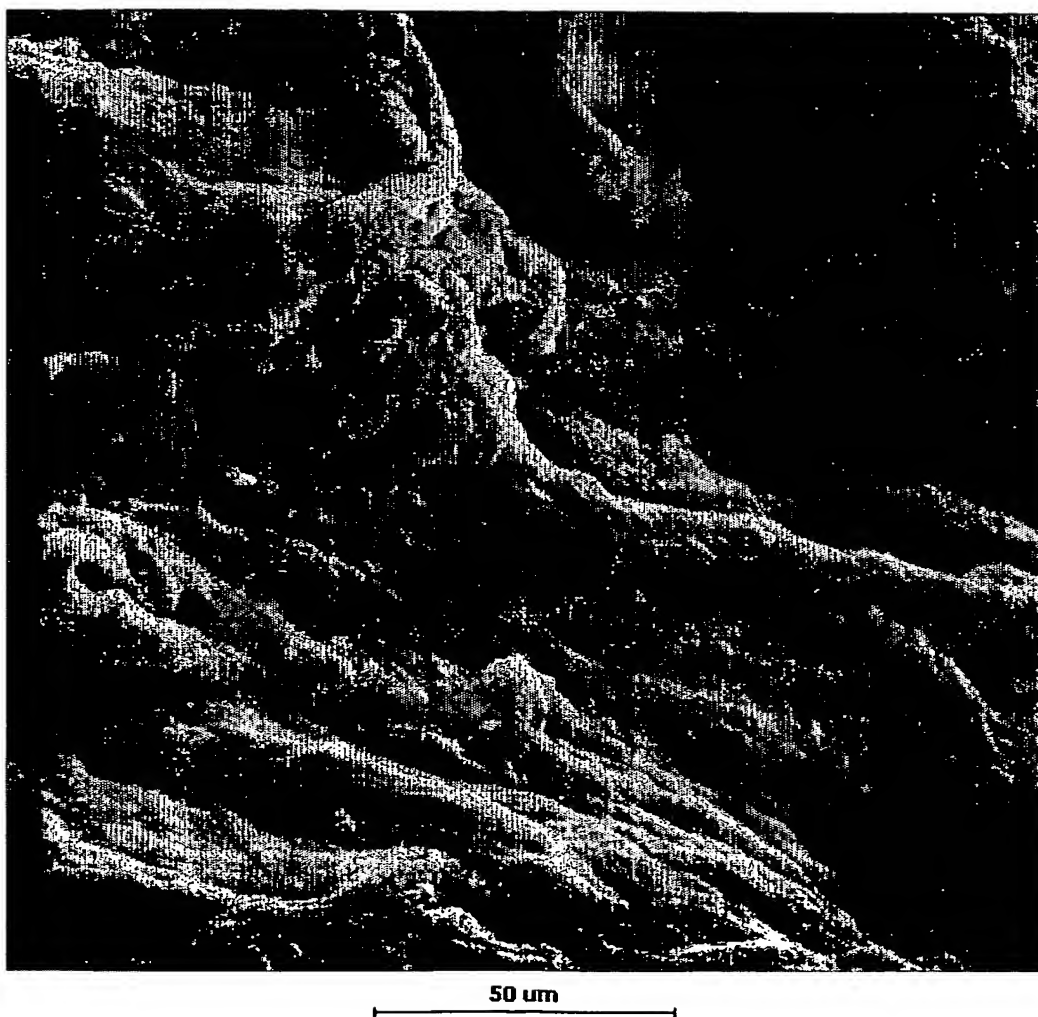
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**Figure 18**

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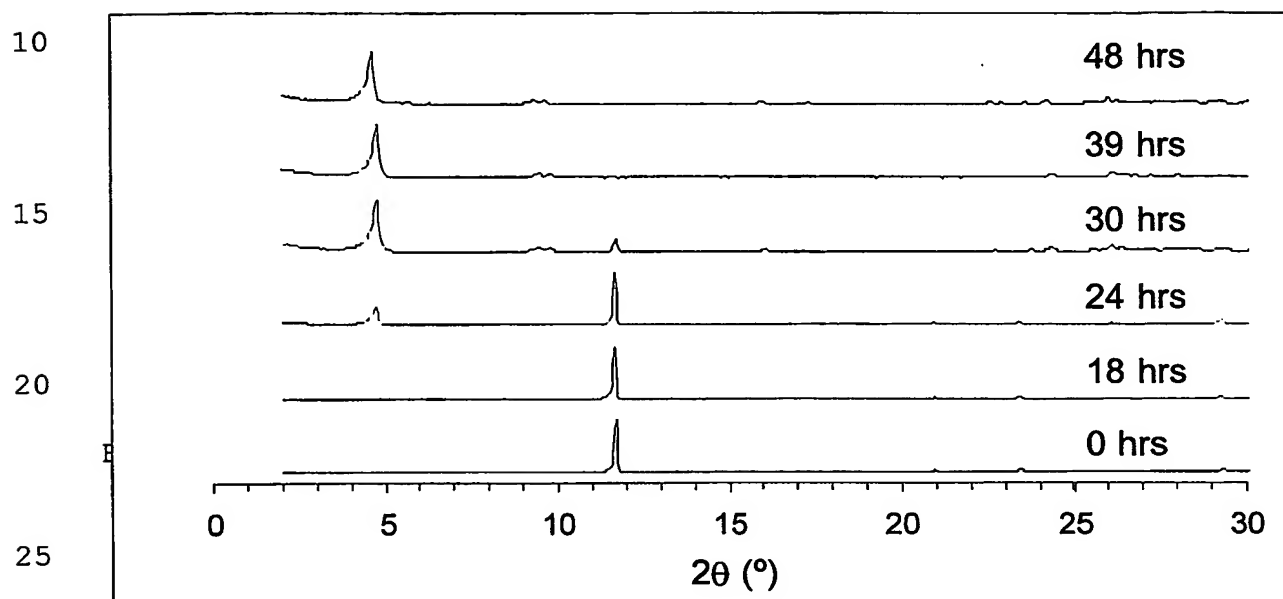


Figure 19

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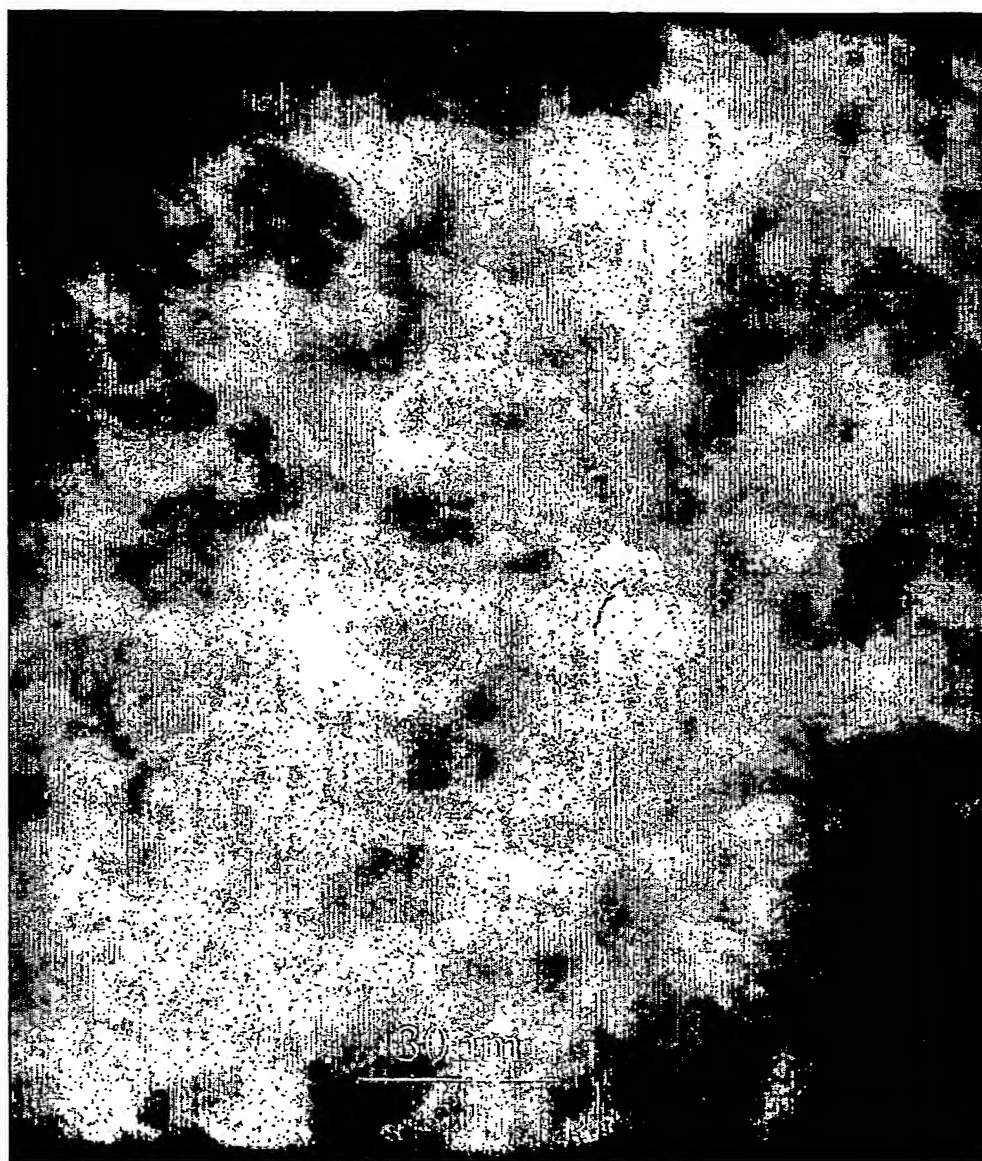


Figure 20

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